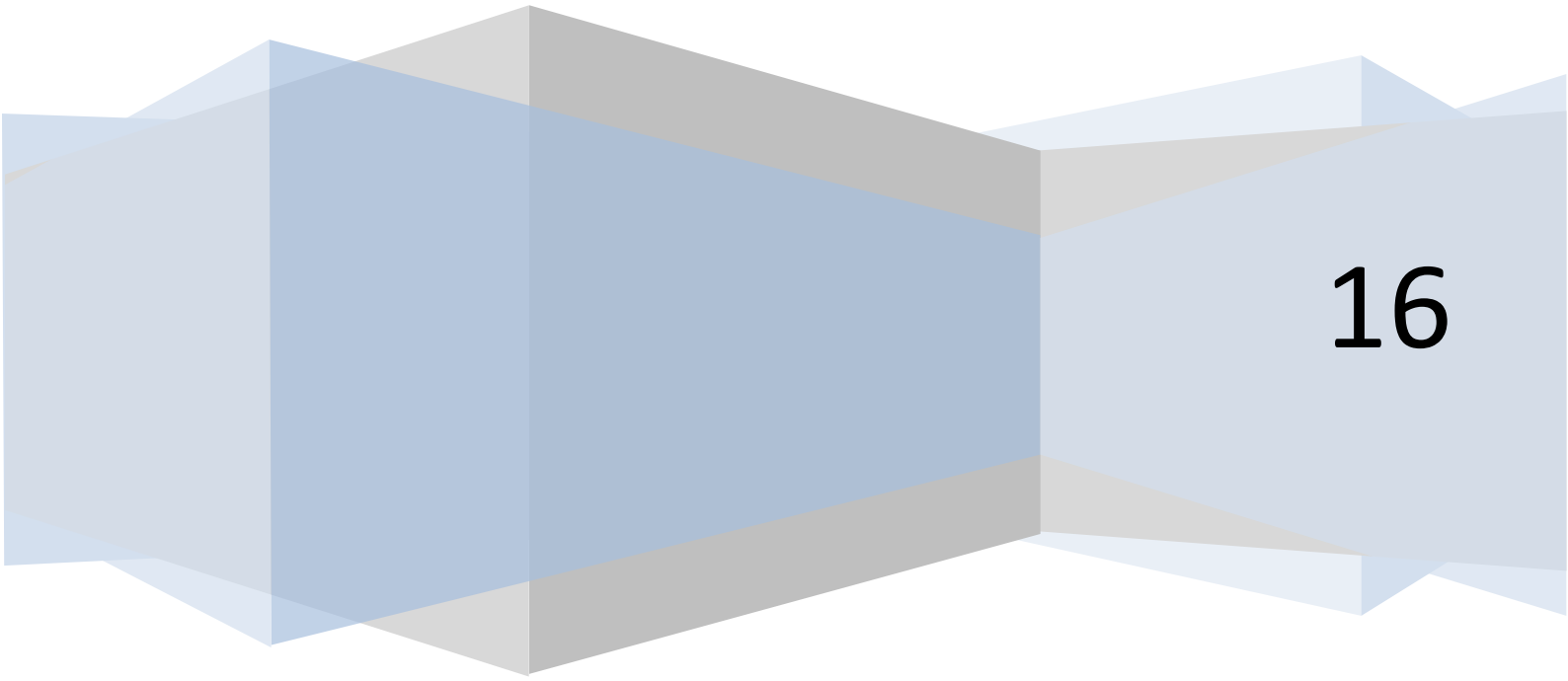
Simpson Refractories

Tapered Blaster Nozzles

Joe53



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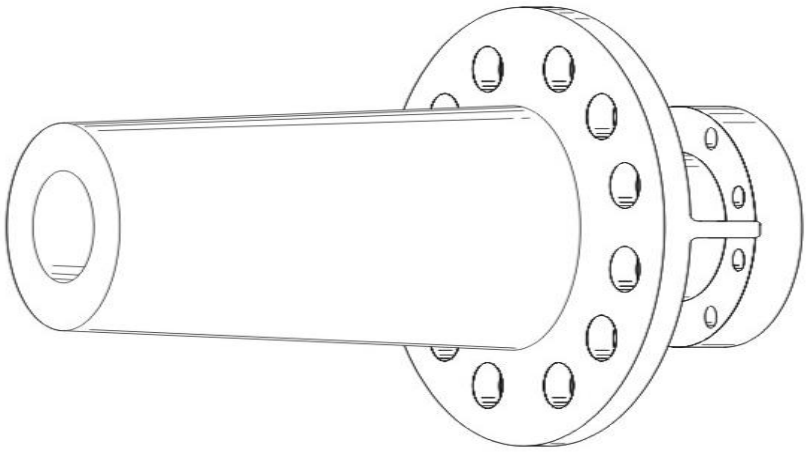
Prematurely wrecking monolithic lining material that would readily last for another campaign and because it is still in good condition, is much harder to remove than worn out material, is very wasteful for our customers. It is frequently wrecked, only to facilitate air blaster nozzle replacement.

Working for a solution to this issue, we have designed and developed our patented, Simpson tapered blaster nozzles. These nozzles allow our customers to extract and replace as required, any worn or damaged blasters, from the outside of their ducts and risers, without having to disturb the internal lining. This means that full lining life is possible and that scaffolding, inspection and wrecking demand can be substantially reduced, during major repairs. In addition the lifting and placing of the new tapered blaster replacements, is all possible from outside the vessel, making the whole operation much safer and simpler for maintenance personnel.

Additionally, the internal accelerator, built into our design means that our nozzles have proved in extensive trials, to be more consistently effective than the traditional slot faced rectangular nozzles, previously used and are not prone to the erosion of the slot/face of the nozzle, as is common with these, ultimately rendering them ineffective before the end of standard campaign runs. Over many years, our customer has had many slot faced nozzles, manufactured in various materials and all tend to prematurely lose their face and require extensive wrecking to replace.



Simpson Refractories, Patented tapered ceramic blaster nozzle.

All of our blasters are manufactured by us, from high quality SiC castable material and utilise Optimised Fibre reinforcement. They utilise a reusable armature/ flange and structural anchor cage and are fully cured at over 600 C.

in our curing oven. Subsequent recasting and reuse of the armature makes replacement nozzles much cheaper than the originals, which in turn compete very favourably with the traditional slot faced nozzles.

Two Simpson nozzles inserted in a customer trial area and once wrapped will be ready for the monolithic lining.

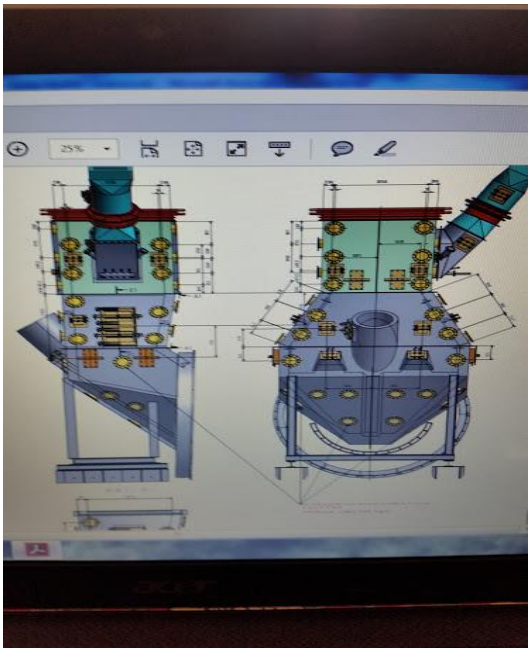
Nozzles shown within the finished lining.

Taking the design forward.

The success of our nozzles has been considerable at Hope Cement Works, so much so that our design is now extensively utilised through both of the Hope pre-heaters.

The nozzles at Hope are connected to 6” (150mm) pipe work from their receivers, as required by Hope and they are reduced for acceleration of the blast from 150mm to 100mm,through the depth of the lining into the riser. Bespoke variations can be produced on an as required basis, we are aware that other locations use 100mm pipe work for their blasters and can produce an accelerator taper blaster to suit, whilst maintaining our design principles.

The blasters can be fitted within a site wet fixed monolithic lining, If a dry precast lining technology is used, as is now installed at the upgraded Kiln 1 Pre-Heater at Hope works, then our blaster design can either be cast into a corner closure strip or fitted by means of being accommodated within a bespoke precast block, having a tapered aperture through which the blasters are inserted.



Hope Kiln 1 upgrade drawing which incorporates the Simpson blaster design format throughout. Simpson Blaster nozzles shown in yellow.

Note drawing not to scale.